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### REMARKS

Claims 1-10 and 44 were pending prior to this Response. By the present amendment, Paragraph 0006 on page 2 of the Specification has been amended to correct an obviously inadvertent grammatical error. In addition, claim 1 has been amended to define Applicant's invention with greater particularity. No new matter has been added, the new claim language being fully supported by the Specification and original claims.

#### The Objection to the Specification

Applicant respectfully traverses the rejection of the Specification on the grounds that an amendment to paragraph 0006 adds new matter by adding "optionally" and deleting "within" in the phrase "and optionally, one or more reference indicia formed ~~within~~ the interstitial material." The Examiner asserts that Applicant did not point to support in the originally filed specification for these changes and new definitions (Office Action, page 3).

To correct an error inadvertently introduced by the previous amendment, paragraph 0006 is currently amended to recite: "and optionally, one or more reference indicia disposed within the interstitial material." Support for the amendments to paragraph 0006 is found in paragraph 0038 of the original Specification, which describes reference indicia as "optional" and "formed of a pad of glass extending from the surface of the capillary array, or embedded in the interstitial material . . . ." In view of the further amendment to paragraph 0006 and the support for the amendment provided above, Applicant respectfully submits that grounds for the objection are obviated. Accordingly, reconsideration and withdrawal of the objection to the Specification are respectfully requested.

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**The Rejection under 35 U.S.C. § 102(a)**

A. Applicant respectfully traverses the rejection of claims 1-7 under 35 U.S.C. § 102(a) as being anticipated by Kumar et al (WO 98/04920; hereinafter "Kumar"). The invention sample screening apparatus, as defined by amended claim 1, distinguishes over the disclosure of Kumar by requiring "a plurality of parallel capillaries fixedly held together in an array, wherein each capillary comprises at least one wall defining a lumen for retaining a sample by capillary forces; and interstitial material disposed between adjacent capillaries in the array." As used in Applicant's Specification and claims, the term interstitial material means material in the spaces between the capillaries that acts to bind the capillaries permanently together. This meaning is in keeping with the dictionary definitions of "*interstitial*" and "*interstice*: A space, esp. a small or narrow one, between things or parts" *Webster's II New College Dictionary*, Houghton Mifflin Company, 1995. In one embodiment, the interstitial material is glass fused to glass capillaries. In another embodiment, the interstitial material is glue that binds the capillaries together permanently.

Kumar is absolutely silent regarding an array wherein the capillaries are *fixedly* held together by interstitial material. The Examiner relies upon Kumar's disposable cartridge as evidence that Kumar discloses "interstitial material". However, Kumar discloses capillary tubes held only at the top edge within a disposable cartridge. As can be seen from the cover page drawing of Kumar, the positioning of the capillary tubes does not create interstices that are filled with interstitial material. In addition, the capillary tubes are not "fixedly" attached via interstitial material because Kumar's capillary tubes are designed to be removed from the cartridge at will. Thus, Kumar fails to disclose at least two key elements of the invention screening apparatus, as defined by amended claim 1.

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To establish anticipation under 35 U.S.C. § 102, each and every element of a claim must be found in a single reference. Since Kumar fails to disclose each and every element of amended claim 1, the reference fails to anticipate claims 1-7. Accordingly, reconsideration and withdrawal of the rejection over Kumar are respectfully requested.

B. Applicant respectfully traverses the rejection of claims 1-7 under 35 U.S.C. § 102(a) as being anticipated by Dehlinger (U.S. Patent No. 5,763,263). The invention sample screening apparatus, as defined by amended claim 1, distinguishes over the disclosure of Dehlinger by requiring “a plurality of parallel capillaries fixedly held together in an array, wherein each capillary comprises: at least one wall defining a lumen *for retaining a sample by capillary forces*; and interstitial material disposed between adjacent capillaries in the array.” Thus, Applicant submits that the amendment to claim 1 overcomes the Examiner’s assertion of the inadequacy of Applicant’s argument that Dehlinger neither discloses nor suggests that the synthesized molecule can be retained within capillaries by capillary forces. Accordingly, Applicant submits again that Dehlinger is absolutely silent regarding an array wherein the capillary lumen is designed for retaining a sample by capillary forces and so fails to disclose each and every element of the invention screening apparatus, as defined by amended claim 1.

To establish anticipation under 35 U.S.C. § 102, each and every element of a claim must be found in a single reference. Since Dehlinger fails to disclose each and every element of amended claim 1, the reference fails to anticipate claims 1-7. Accordingly, reconsideration and withdrawal of the rejection over Kumar are respectfully requested.

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**The Rejection under 35 U.S.C. § 103(a)**

A. Applicant respectfully traverses the rejection of claims 8-10 and 44 under 35 U.S.C. § 103(a) for being unpatentable over Kumar in view of Winkler et al. (U.S. Patent No. 5,677,195; hereinafter "Winkler"), as allegedly being unpatentable. Applicant respectfully submits that remarks above with regard to the differences between Kumar and the invention defined by claims 1-7 apply equally to claims 8-10 and 44 and are incorporated here because claims 8-10 and 44 depend from claim 1. Kumar is absolutely silent regarding an array wherein the capillaries are *fixedly* held together by interstitial material and, hence, does not suggest adaptation of the disclosed apparatus along the lines of the invention sample screening apparatus to provide an array wherein the capillaries are fixedly held together by interstitial material for addressable screening. Kumar's tubes are designed to fit into holes provided in a device that is used to individually analyze the contents of the capillary tubes. Thus, there is no reason provided by the reference itself to add positionally addressable indicia to the Kumar advice because such indicia are not needed.

In addition, Applicant submits that the combination of Kumar and Winkler would not motivate those of skill in the art to design the invention sample screening apparatus. The array disclosed by Winkler is not an array of capillaries, but is instead a flat, optionally rotatable "substrate" having discrete "reaction regions" defined thereon into which a series of monomers are sequentially deposited to fabricate a substance for testing. For example, Winkler teaches that "reagents are delivered to the substrate by either (1) flowing within a channel defined on predefined regions or (2) 'spotting' on predefined regions" (Col 8, lines 64-67). Alternatively, a single molecule, such as a "receptor" can be attached to each region of the substrate and then subjected to a battery of putative binding agents or ligands for the receptor. Because Winkler

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discloses that array components are deposited at locations on a two dimensional array from pipettes or flow-through channels, there is no suggestion in Winkler of an array of capillary tubes or of tubes dimensioned to load *and retain* an analyte by capillary forces, for example a substrate and at least one clone (e.g., a cell for cultivation within the capillary tube). Thus, Winkler does not cure the deficiencies of Kumar for suggesting the invention apparatus, as defined by claims 8-10 and 44.

Nor do the references themselves suggest how to modify Kumar's device to provide the invention position-addressable capillary array in which interstitial material is disposed between adjacent capillaries because neither reference refers to or suggests interstitial material placed between adjacent capillaries in an array, whether the interstitial material is marked with reference indicia or not. In addition, Winkler's disclosure regarding a positionally addressable flat substrate upon which molecules are synthesized in a grid pattern, even in combination with Kumar's disclosure of an array that looks like a row of test tubes in a test tube holder, would not be sufficient to motivate those of skill in the art to dispose indicia within an interstitial medium fixedly holding capillaries together. Thus, it is the position of the Applicant that even if the combined disclosures of Kumar and Winkler can be said to suggest creation of a position-addressable array, the subject matter of present claims 8-10 and 44 is not suggested under 35 U.S.C. § 103. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

**B.** Applicant respectfully traverses the rejection of claims 8-10 and 44 under 35 U.S.C. § 103(a) for being unpatentable over Dehlinger in view of Winkler as allegedly being unpatentable. Applicant respectfully submits that remarks above with regard to the differences between Dehlinger and the invention defined by claims 1-7 apply equally to claims 8-10 and 44

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and are incorporated here because claims 8-10 and 44 depend from claim 1. In addition, Applicant submits that the combination of Dehlinger and Winkler fails to suggest the invention position addressable array of claims 8-10 and 44.

Dehlinger discloses an array of capillary tubes suitable for use of capillary action to repetitively "imbibe" individual monomers (e.g., nucleotides) to be used in synthesis of the reagents, but Dehlinger neither discloses nor suggests designing a capillary array with capillary lumens designed to retain an analyte by capillary forces. Moreover, Applicant submits that Dehlinger would not motivate those of skill in the art to modify the disclosed array to make it suitable for Applicant's invention, and even if those of skill in the art were motivated by Dehlinger to adapt the disclosed array along the lines of Applicant's array, there would be no reasonable expectation of success because Dehlinger does not contemplate retention of molecules other than by attachment to the interior of the tubes in the array.

Thus, Applicant submits that Winkler's disclosure regarding reference indicia located on a flat plate fails to overcome these deficiencies of Dehlinger such that the combination of Dehlinger and Winkler would suggest the invention sample screening apparatus to those of skill in the art. The remarks above concerning Winkler apply equally and are incorporated here.

Applicant submits that Winkler's disclosure regarding a positionally addressable flat substrate upon which molecules are synthesized in a grid pattern would not motivate those of skill in the art to modify Dehlinger's capillary array to add reference indicia within an interstitial medium fixedly holding a plurality of capillaries together because Winkler discloses that array components are deposited at locations on a two dimensional substrate. In addition, Winkler's disclosure regarding a positionally addressable flat substrate with molecules synthesized in a

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grid pattern appears to be “addressable” only in the sense that certain areas of the substrate where light paths intersect are brighter than others, indicating the presence of a particular oligomer formed there (See Section D Channel Matrix Hybridization Assay, Col 29-30). Thus, it is the position of the Applicant that even if the combined disclosures of Dehlinger and Winker could be said to motivate those of skill in the art to create a position-addressable capillary array, as argued by the Examiner, there would be no expectation of success due to the failure of Winker to suggest *how* to adapt the flat tray array to the Dehlinger three dimensional array to incorporate reference indicia.

Thus, Applicant submits that the subject matter of present claims 8-10 and 44 is not suggested under 35 U.S.C. § 103 by the combined disclosures of Dehlinger and Winkler and reconsideration and withdrawal of the rejection are respectfully requested.

### **The Double Patenting Rejection**

The rejection based on double patenting of the “same invention” type under 35 U.S.C. § 101 has been maintained despite Applicant’s filing of a Terminal Disclaimer over application Serial No. 09/790,321 on the grounds that a statutory type double patenting rejection cannot be overcome by filing of a Terminal Disclaimer. However, Applicant respectfully submits that claims 1-10, as amended herein, are not co-extensive with claims 1-10 of application Serial No. 09/790,321. Therefore, in view of the Terminal Disclaimer filed, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims herein based on double patenting of the “same invention” type under 35 U.S.C. § 101.

In view of the above amendments and remarks, Applicant respectfully submits that all rejections have been overcome and allowance of claims 1-10 and 44 is respectfully requested.

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If the Examiner would like to discuss any of the issues raised in the Office Action,  
Applicant's representative, Lisa A. Haile, J.D., Ph.D., can be reached at (858) 677-1456.

Respectfully submitted,

Date: January 20, 2004



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